



**DB LECTRO**  
COMPOSANTS ÉLECTRONIQUES  
ELECTRONIC COMPONENTS

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# Radial Leaded PTC Resettable Fuse: FRV Series

## Preliminary



### 1. Summary

- (a) **RoHS Compliant (Lead Free) Product**
- (b) **Applications: Line Voltage Power Supply, Transformer and Appliances**
- (c) **Product Features: Low hold current, Solid state, Radial leaded product ideal for up to 265V<sub>AC/DC</sub>**
- (d) **Operation Current: 50mA~550mA**
- (e) **Maximum Operating Voltage: 240V<sub>AC/DC</sub>**
- (f) **Maximum Interrupt Voltage: 265V<sub>AC/DC</sub>**
- (g) **Temperature Range : -40°C to 85°C**

### 2. Agency Recognition

- UL: File No. Pending
- C-UL: File No. Pending
- TÜV: File No. Pending

### 3. Electrical Characteristics (23°C)

Part Number	Hold Current	Trip Current	Max. Time to Trip	Maximum Current	Rated Voltage	Typical Power	Resistance Tolerance	
							R <sub>MIN</sub>	R <sub>1MAX</sub>
	I <sub>H</sub> , A	I <sub>T</sub> , A	at 5xI <sub>H</sub>	I <sub>MAX</sub> , A	V <sub>MAX</sub> , V <sub>AC</sub>	P <sub>d</sub> , W	ohms	ohms
FRV005-240F	0.05	0.12	15.0	1.0	240	0.70	18.50	65.00
FRV008-240F	0.08	0.19	15.0	1.2	240	0.80	7.40	26.00
FRV012-240F	0.12	0.30	15.0	1.2	240	1.00	3.00	12.00
FRV016-240F	0.16	0.37	15.0	2.0	240	1.40	2.50	7.80
FRV025-240F	0.25	0.56	18.5	3.5	240	1.50	1.30	3.80
FRV033-240F	0.33	0.74	18.5	4.5	240	1.70	0.83	2.60
FRV040-240F	0.40	0.90	24.0	5.5	240	2.00	0.60	1.90
FRV055-240F	0.55	1.25	26.0	7.0	240	3.40	0.45	1.45

I<sub>H</sub>=Hold current-maximum current at which the device will not trip at 23°C still air.  
 I<sub>T</sub>=Trip current-minimum current at which the device will always trip at 23°C still air.  
 V<sub>MAX</sub>=Maximum voltage device can withstand without damage at its rated current.  
 I<sub>MAX</sub>=Maximum fault current device can withstand without damage at rated voltage (V<sub>MAX</sub>).  
 P<sub>d</sub>=Typical power dissipated from device when in tripped state in 23°C still air environment.  
 R<sub>MIN</sub>=Minimum device resistance at 23°C.  
 R<sub>1MAX</sub>=Maximum device resistance at 23°C, 1 hour after tripping.

Physical specifications:

Lead material: FRV005-240F~FRV016-240F Tin plated copper, 24AWG.  
 FRV025-240F~FRV040-240F Tin plated copper, 22AWG.  
 FRV055-240F Tin plated copper, 20AWG.

Soldering characteristics: MIL-STD-202, Method 208E.

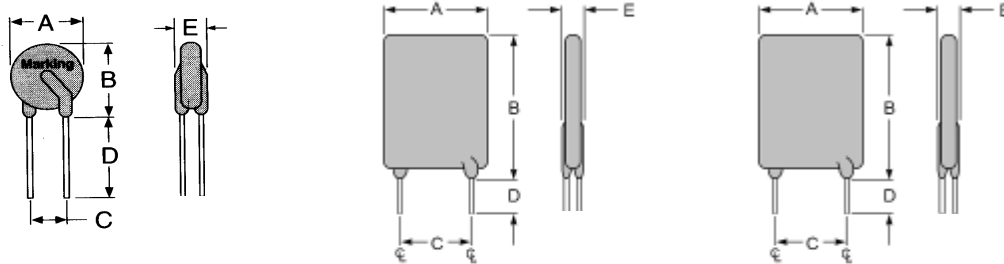
Insulating coating:Flame retardant epoxy, meets UL-94V-0 requirement.





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#### 4. Production Dimensions (millimeter)



**FRV 005-240F~FRV016-240F**

Lead Size: 24AWG  
Φ 0.51 mm Diameter

**FRV025-240F~FRV040-240F**

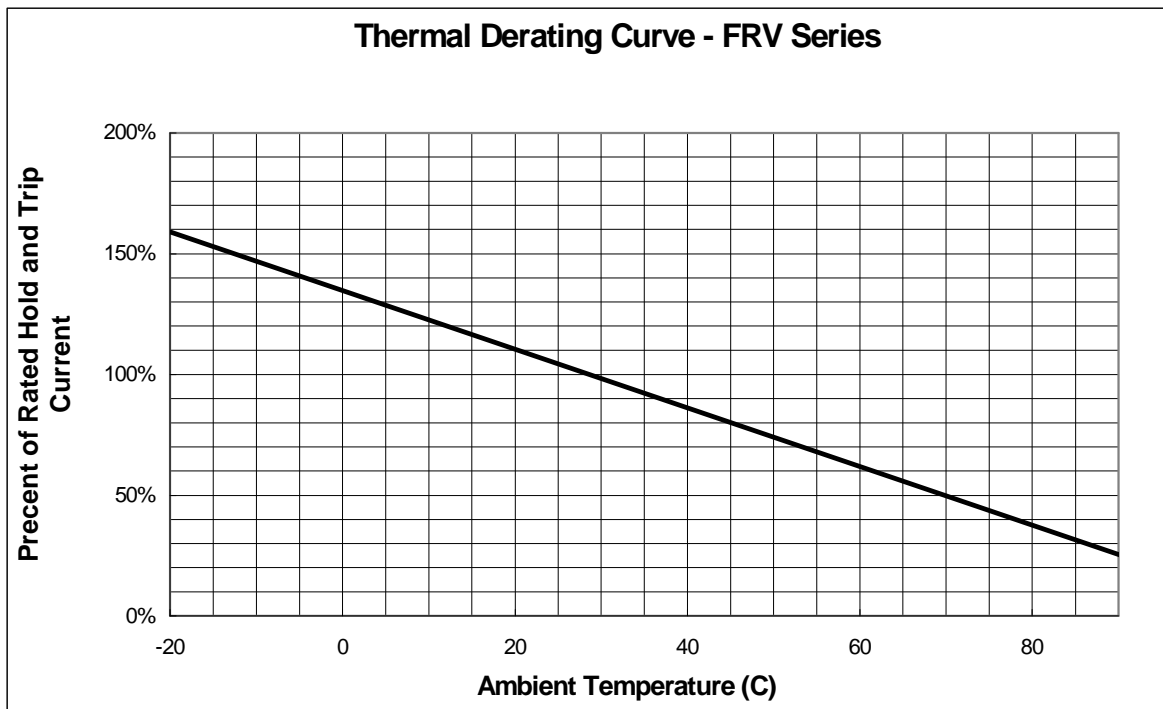
Lead Size: 22AWG  
Φ 0.65 mm Diameter

**FRV055-240F**

Lead Size: 20AWG  
Φ 0.81 mm Diameter

Part Number	A	B	C	D	E
	Maximum	Maximum	Typical	Minimum	Maximum
FRV005-240F	8.3	10.7	5.1	7.6	3.8
FRV008-240F	8.3	10.7	5.1	7.6	3.8
FRV012-240F	8.3	10.7	5.1	7.6	3.8
FRV016-240F	9.9	12.5	5.1	7.6	3.8
FRV025-240F	9.6	17.4	5.1	7.6	3.8
FRV033-240F	11.4	16.5	5.1	7.6	3.8
FRV040-240F	11.5	19.5	5.1	7.6	3.8
FRV055-240F	14.0	21.7	5.1	7.6	4.1

#### 5. Thermal Derating Curve

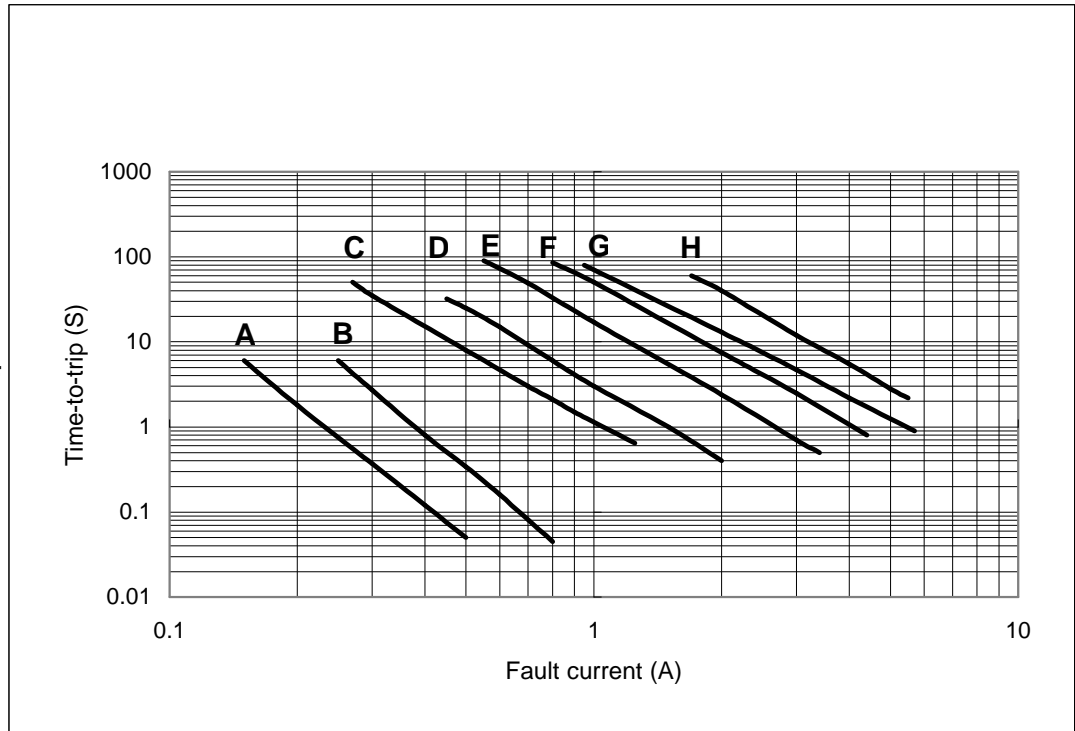




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## 6. Typical Time-To-Trip at 23°C

- A= FRV005-240F
- B= FRV008-240F
- C= FRV012-240F
- D= FRV016-240F
- E= FRV025-240F
- F= FRV033-240F
- G= FRV040-240F
- H= FRV055-240F



## 7. Material Specification

Lead material : FRV005-240F~FRV016-240F Tin plated copper, 24AWG.  
 FRV025-240F~FRV040-240F Tin plated copper, 22AWG.  
 FRV055-240F Tin plated copper, 20AWG.

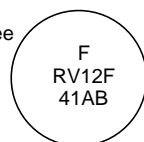
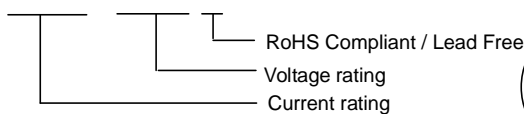
Soldering characteristics: MIL-STD-202, Method 208E.

Insulating coating: Flame retardant epoxy, meets UL-94V-0 requirement.

## 8. Part Numbering and Marking System

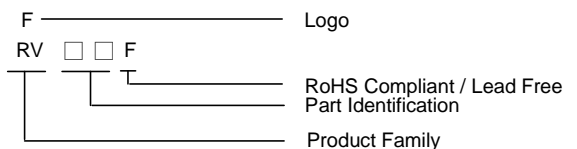
### Part Numbering System

FRV □ □ □ - □ □ □ F



Example

### Part Marking System





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- Warning:** - Each product should be carefully evaluated and tested for their suitability of application.
- Operation beyond the specified maximum rating or improper use may result in damage and possible electrical arcing and/or flame.
  - PPTC device are intended for occasional overcurrent protection. Application for repeated overcurrent condition and/or prolonged trip are not anticipated.
  - Avoid contact of PPTC device with chemical solvent, including some inert material such as silicone based oil, lubricant and etc. Prolonged contact will damage the device performance.
  - Additional protection mechanism are strongly recommended to be used in conjunction with the PPTC device for protection against abnormal or failure conditions.
  - Avoid use of PPTC device in a constrained space such as potting material, housing and containers where have limited space to accommodate device thermal expansion and/or contraction.